



Madagascar National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2012

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INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 10/02, final scientific data for the previous year was provided to the Secretariat by 30 June of the current year, for all fleets other than longline [e.g. for a National report submitted to the Secretariat in 2012 final data for the 2011 calendar year must be provided to the Secretariat by 30 June 2012)	NO
In accordance with IOTC Resolution 10/02, provisional longline data for the previous year was provided to the Secretariat by 30 June of the current year [e.g. for a National report submitted to the Secretariat in 2012, preliminary data for the 2011 calendar year was provided to the Secretariat by 30 June 2012). REMINDER: Final longline data for the previous year is due to the Secretariat by 30 Dec of the current year [e.g. for a National report submitted to the Secretariat in 2012, final data for the 2011 calendar year must be provided to the Secretariat by 30 December 2012).	YES 01/08/2012
Malagasy fleet for tuna is made only by longliners operating in the eastern waters of Madagascar	

Executive Summary

National tuna fishing is practiced mainly by small longliners. An increase of the number of vessels on this fishery has been observed in these recent years. In 2011, they are among 07 who have license to fishing for tuna and like species. They operate in the East side of Madagascar since 2010.

Tuna mainly neritic tunas are also observed in the catches of the fleets that have license to target demersal fishes, they are longliners, trollers and pole and liner operating in the Western side, and Eastern side of Madagascar, but the proportion is relatively low.

Statements of the fishing Companies have observed an increase in catches from the year 2010 to the national fleets catches. However, these statements cannot see the details on the locations of fishing. A new version of logbook has been operational since 2012 to fill this lack.

An increase in the catches have observed according by the statement of the fishing Companies compared to the last year (2010)

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1. GENERAL FISHERY INFORMATION

Having a huge potential for its large coastline (5603 km) and its vast exclusive economic zone (1 140 000 km²), fishing is one of the five (5) growth sectors of the economy of Madagascar. In Madagascar, the commercial fishery is divided into 03 types according to the national text (Decree n° 94-112 of 13 February 1994) industrial (50 hp more engine power), artisanal (engine power ≤ 50 hp) and traditional (on foot or with a motorized or not monoxyle canoe). Only the artisanal and industrial boats motorized have a fishing license. For non-motorized boats, the Department is in the process of their registration.

Apart from commercial fishing, there are also subsistence fishing, recreational fishing and experimental fishing. And according to this text (Decree n° 94-112 of 13 February 1994), the industrial and artisanal vessels operating in the waters of Madagascar are classified in 04 categories. Vessels ownerships of Citizen, Company or State; chartered by a Citizen or Company or the State, foreign vessels based in Madagascar respectively belong to Category I, II and III. Foreign vessels operating in Madagascar belong to the category IV.

In 2011, 97 vessels belong to the first three categories known as national fleets have obtained fishing licenses. Among them, 07 longliners targeted tuna and like species and 28 vessels (bottom longliners, pole and liners and trolling) targeting demersal fishes species but also catch tuna as bycatch. The remaining target other coastal resources essentially the coastal shrimps or done the collecte activities and support. Coastal shrimp fishing by trawlers was still practiced in Madagascar since a long time. But, industrial tuna fishing is a fishing recently practiced by national operators. Longline fishing is the main technique used for tuna fishing.

On fishing area, the both sides (East and West) but especially the Eastern side of Madagascar are the favored fishing areas by tuna fishing.

2. FLEET STRUCTURE

Consists essentially of longline, Malagasy flagged fleets are booming. Madagascar mobilized one longliner in 2007. Since then, this number continues to increase gradually and reached up to six vessels at the end of the exploratory period in 2010. Last year, another fishing vessel less than 25 m had garnish the size of the national fleet.

If the larger fishing vessels (> 25 m) is reluctant to this fishery, those smaller (<17 m) are interested in more. The following table shows the breakdown by year of tuna and like species fishing vessels.

Table 1 : Number of National tunas fishing vessels, by gear type and size.

Year	Prospection		Longliner		total
	<25	>25m	<25	>25m	
2007				01	01
2008			2	2	04
2009	02			2	04
2010	04		1	1	06
2011			6	1	07

It is clear that other fisheries can catch tuna incidentally at a small proportion. This is the case on the demersal fishing by the bottom longliner, trolling or even multi-gear designed primarily demersal fishes who catch also tunas, mainly neritic tunas. Recent investigations have shown that the rate of tuna resources in the total catch of these does not exceed 11%.

Indeed, recent findings have to say that national operators are beginning to pay attention. Also, the number of fishing vessels dispatched by gear type and year is shown in Table 2

Table 2 : Number of National demersal fishes fishing vessels, by gear type and size

Year	Prospection		Pole and liner		Multi-gear		longliner		total
	<25	>25m	<25	>25m	<25	>25m	<25	>25m	
2007	02		07				01		10
2008			19				04		23
2009							13		13
2010	15		04		12				31
2011			9		18		10		37

3. CATCH AND EFFORT

The data collection system used by the fisheries administration does not distinguish tuna among fishes. It was only in 2010 that the tuna are separated from the fish group. In early 2012, the entry into force of the standard logbook model would certainly improve the quality of statistics available to managers for the simple reason that it provides much more detail on the activities of national longline. For the moment, the resulting statistics are being processed.

Therefore, maps of catch and effort erect below are still based on information supplied by VMS (Vessel Monitoring System). It must be mentioned that most of the small vessels are not equipped, and therefore omitted from the map display. And trip report data provided by observers are used to map the catch. In addition, it is important to remember that the rate of observer coverage is around 30%. The following maps are figures of the sample spatial distribution of catches by species that are not in any way refer to the whole catches. The latter is represented in Table 3 for the years 2010 e 2011

Table 3 : National fleets catches of tunas and like species in 2010 by 06 longliners whose 04 operated as prospecting

Species	Catch in KG
<i>Coryphaena equiselis</i>	53 167,20
<i>Xiphias gladius</i>	98 785,00
<i>Thunnus alalunga</i>	85 759,30
<i>Makaira indica</i>	17 933,00
<i>Carcharhinus longimanus</i>	84 750,20
<i>Acanthocybium solandri</i>	1 124,00
<i>Gymnosarda unicolor</i>	381,00
<i>Thunnus albacares</i>	68 674,80
<i>Thunnus obesus</i>	81 934,50
<i>Istiophorus platypterus</i>	1 543,00
T O T A L	494 052,00

Table 4 : National catches of tunas and like species in 2011 by 07 longliners

ESPECES CAPTUREES	QUANTITE EN KG
<i>Coryphaena equiselis</i>	72 021,40
<i>Xiphias gladius</i>	87 024,73
<i>Thunnus alalunga</i>	60 655,07
<i>Makaira indica</i>	7 002,00
<i>Carcharhinus longimanus</i>	56 144,80
<i>Acanthocybium solandri</i>	1 216,70
<i>Thunnus maccoyii</i>	730,00
<i>Thunnus albacares</i>	61 363,24
<i>Thunnus obesus</i>	66 870,09
<i>Istiophorus platypterus</i>	1 416,26
<i>Tetrapturus audax</i>	5 663,14
T O T A L	420 107,42

The following figure shows the quantities of the main species for both years (2010 and 2011) available at the Ministry of Fisheries and Marine Resources. These are longline catches.

Figure 1 : Annual catch for the national longline fleet for the year 2010 and 2011

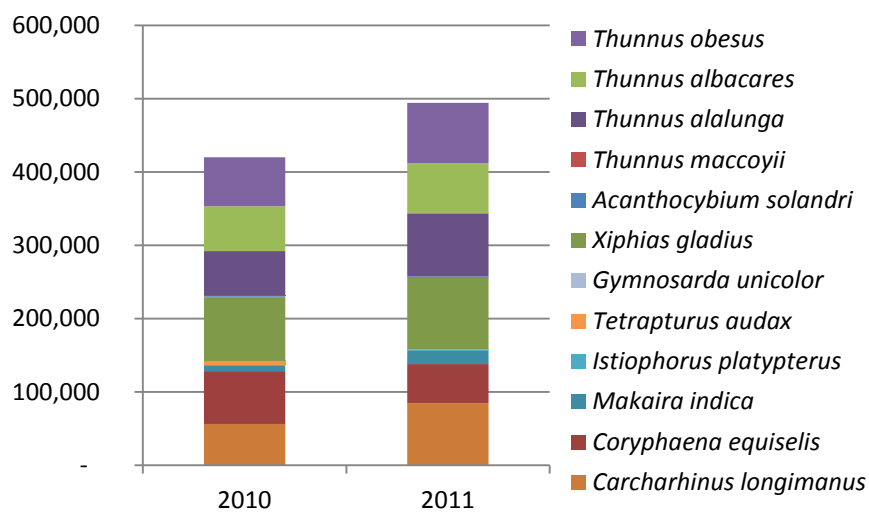


Figure 2 : Map of the distribution of fishing effort for the National longline according to the VMS database in 2011

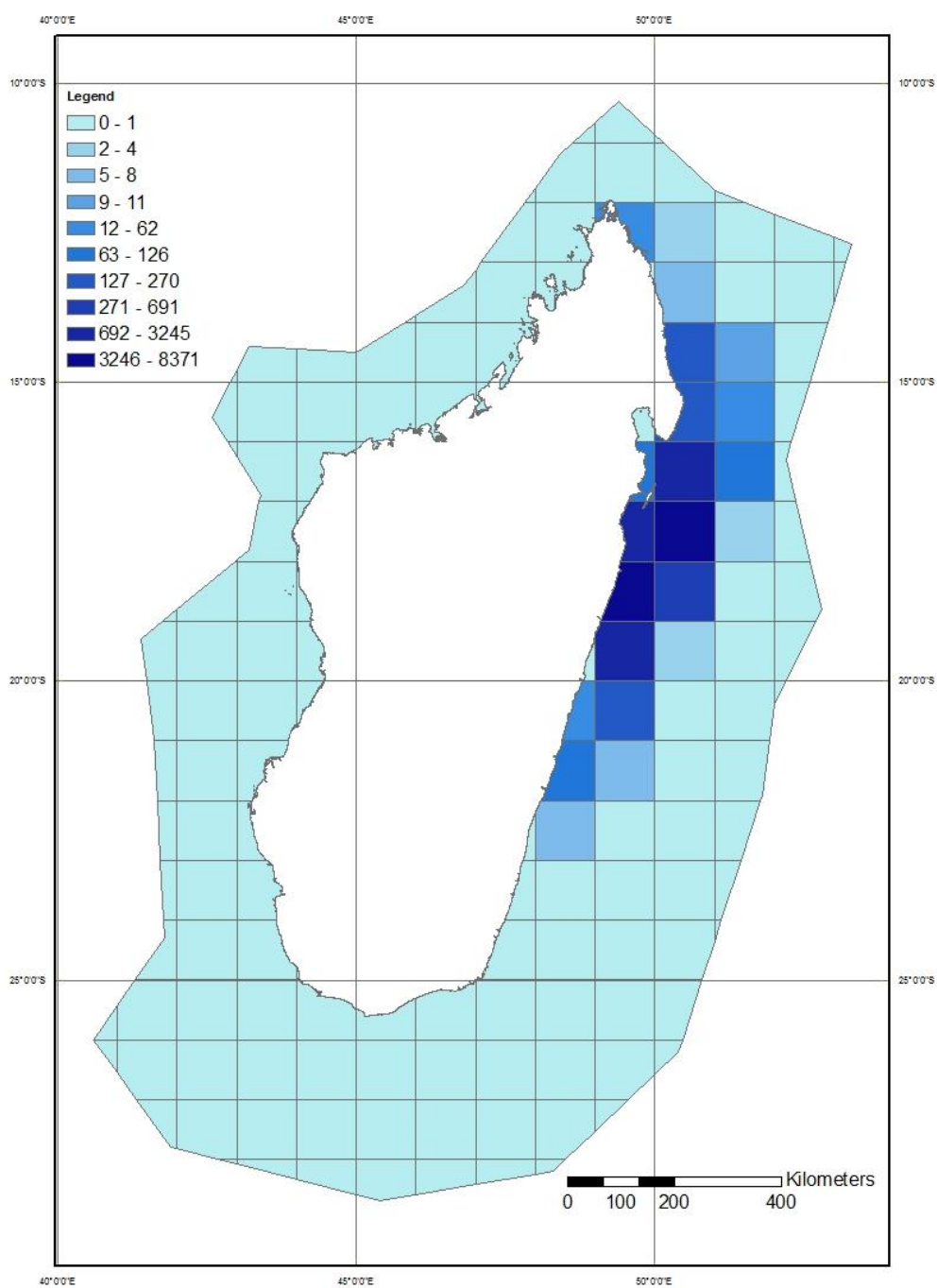


Figure 3 : Map of the distribution of fishing catch by species for the National longline according to the trip report database in 2011

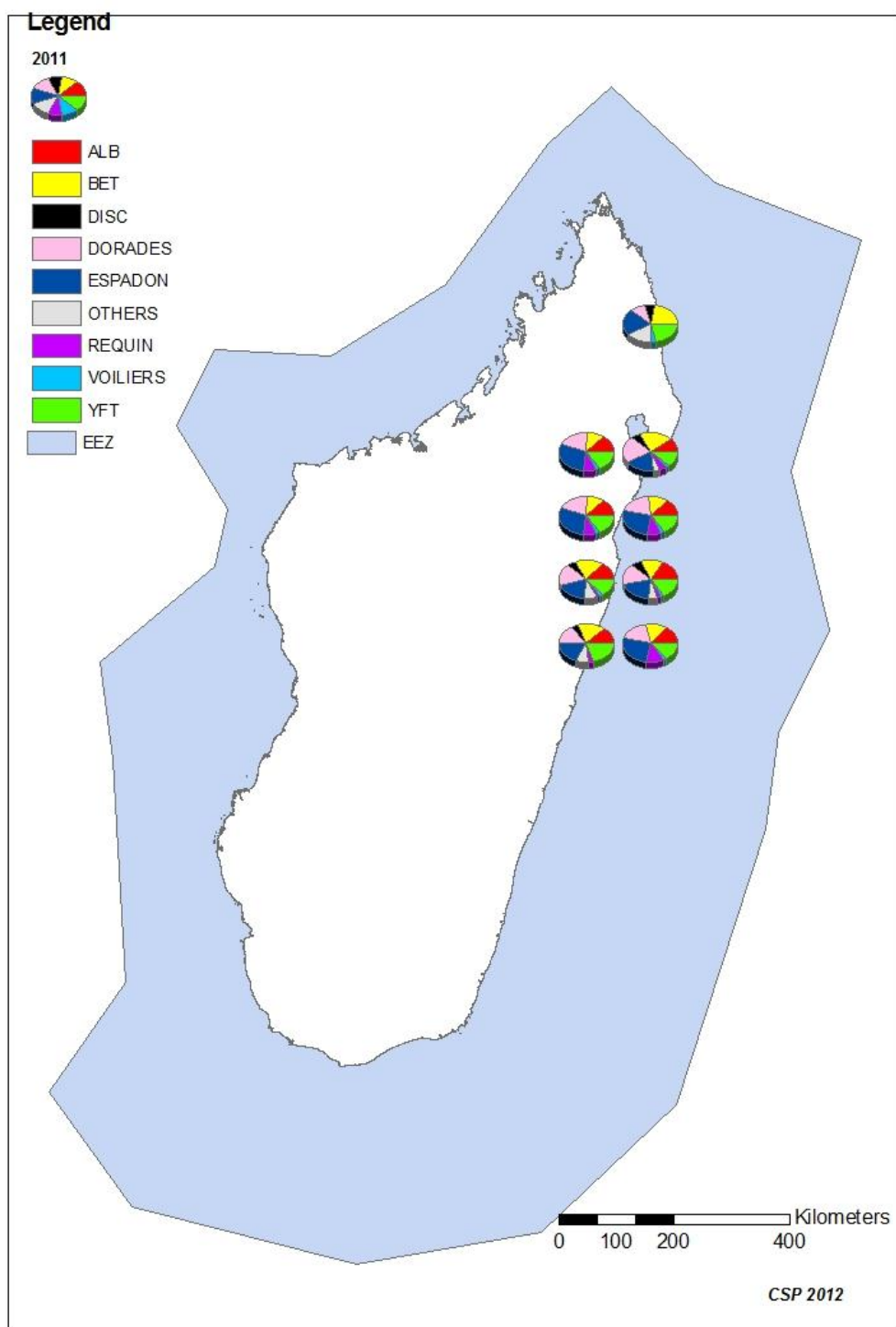
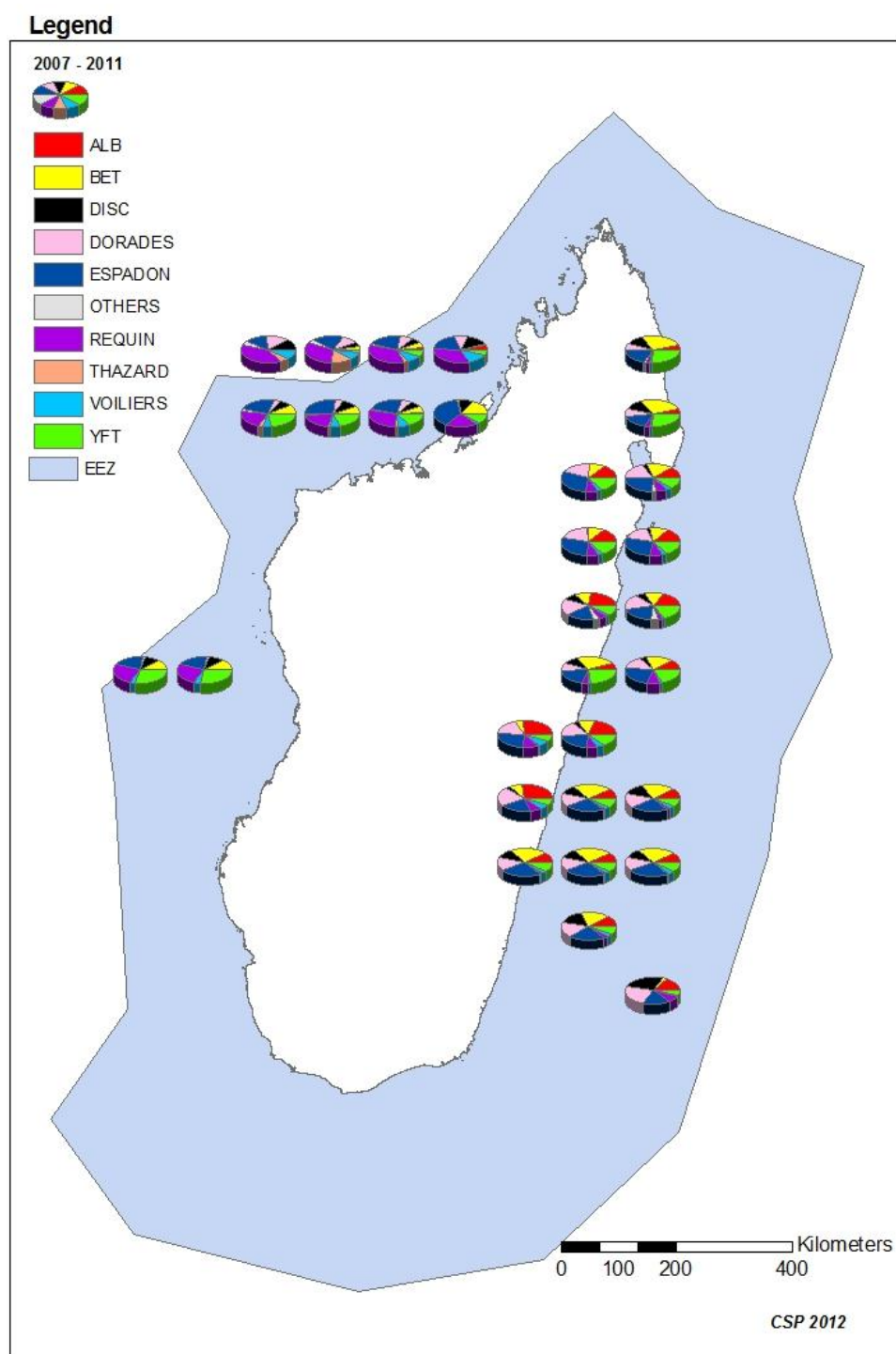


Figure 4 : Map of the distribution of average catch by species for the National longline according to the trip report database for the period 2007 - 2011



4. RECREATIONAL FISHERY

The approach to develop a database of sport fishing (PS) has been started since 2011 in the Northern part of the Madagascar Island. Sensitization with PS Centers and training their skippers to fill in the logbook were conducted during 2012. However, the lack of specific regulation on this fishing increases the delay in its

implementation and therefore encourages recalcitrant to not report their fishing activities. As a result, the implementation of the database on sport fishing is yet a challenge faced by the fisheries administration.

5. ECOSYSTEM AND BYCATCH ISSUES

Currently, Madagascar has not yet an action plan for the management of bycatch (sharks, marine mammals, seabirds, sea turtles). The Ministry is striving to develop them. Nevertheless, these reduction measures taken are required to shipowners including the installation of BRD and TED on shrimp trawlers, the fishing ban and returned to the water immediately protected species ... Note also that conscious on conservation of the ecosystem, the Malagasy longline fleet have adopted fishing techniques to minimize the impact of their activities on the environment. In this regard, recent reports have mentioned the use of monofilament lines and the deployment of "circle hooks" ...

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. Logsheet data collection and verification

The system of collecting, processing and management of tuna fisheries data is based on the declarative system. In other words, fishing companies ensure the collection of information on fishing activities and then send it, at their leisure, a copy of the logbook to the MPRH (Ministry of Fisheries and Marine Resources). It must be remembered that by 2010, the companies statements were global and gave no details on the location of fisheries or species caught.

For the years 2010 and 2011, the same companies began to report details on the specific composition of their catch landings but some information on fishing activities was still missing. As such, they have however omitted in most of their declaration the type and number of baits as well as hook deployed. Added to this is the lack of geographical locations where the fishing operation took place. The use of the new version of logbook has been in effect since 2012 and which has been designed to meet the common requirements of MPRH and IOTC

6.2. Vessel Monitoring System

The vessel monitoring system by satellite is one of means directly related to the vessel activities within the EEZ of Madagascar. Indeed, any fishing vessel licensed must have a functional satellite tracking device on board.

This system has been test in 2000 and made mandatory for all vessels licensed in 2002 by the decree 1613/2002 on 31 July 2002. A database was created since its inception up to now. The Fisheries Monitoring Centre (CSP) made its update in a systematic way. Currently, CSP manages more than 250 satellite beacons positioning and the database thus formed can be used on logbooks validation, fishing area definition, apart from operational use on control and surveillance.

6.3. Observer Program

Observer Program was established in 1999 after the Fisheries Monitoring Centre was created. A first wave of observers was recruited in 1999 (Observers operational monitoring after training), followed by a second wave in 2001. After staff turnover (layoff, resignation, etc), the current observers are around 23.

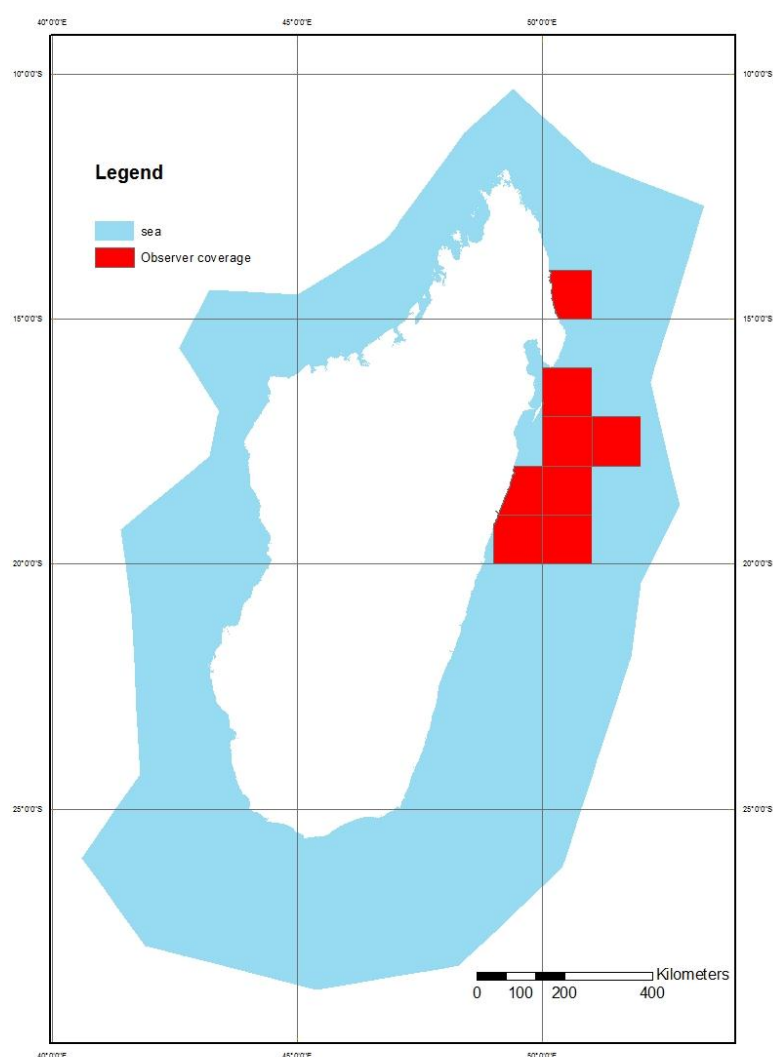
The following table shows the observer coverage on tuna national fleets. Lack of information on total fishing efforts, the table shows only the number of operating vessels and trips covered and the total number of days of observation. Initially, the aim to cover 30% of the trips has been fixed. Because exhaustive information on fishing activities, such as the total number of trips are missing, the determination of exact coverage is even impossible

Table 5 : Observer Annual coverage on the National Tunas fleets (2007 – 2011):

Year	2007	2008	2009	2010	2011	2012
Number of tuna longline vessels	1	2	2	4	7	8
Number of trips observed	3	4	13	4	19	ND
Number of fishing days observed	192	75	178	35	230	ND

The spatial distribution of observer coverage is similar to the spatial distribution of the catches that was presented earlier.

Figure 5 : Map showing the spatial distribution of observer coverage (year 2011)



6.4. Port sampling programme

Currently, the sampling protocol for landing is already defined and its implementation is estimated in 2013. The following table summarizes this sampling protocol.

Table 6 : *Nombre d'individus mesurés et pesés, par espèce et engin* [Obligatoire]

Species	Weighing	Measurement	Sample size
SWO	Total weight or treated fish weight	LJFL	≈10%
YFT	Total weight or treated fish weight	DL, FL, ...	≈10%
BET	Total weight or treated fish weight	DL, FL, ...	≈10%
ALB	Total weight or treated fish weight	DL, FL, ...	≈10%
Alopidae	Total weight or treated fish weight	DL, FL, ...	≈5%

7. NATIONAL REACHERH PROGRAM

Table 7 : *Summary table of national research programs, including dates.*

Project title	Period	Countries involved	Budget total	Funding source	Objectives	Short description
Assessment of the byproducts landed at the port of Antsiranana (purse seiner + Cargo)	Since 2011	Madagascar	Undefined	Agence Malgache des pêches et de l'Aquaculture (AMPA)	Collection of by-products data	Assessing quantitatively the by-product by species and category after the purse seine landings or transshipments in port of Antsiranana. This can be capitalized to investigations related to the dimension of the purse the ravages or the socio-economic impacts of the tuna campaign at Antsiranana town. Status: in good running
Establishment a database on the sport fishery	Since 2012	Madagascar	Undefined	AMPA	Consolidate information on the Sport fishery in Madagascar	This program is to collaborate with recreational fishing clubs to establish a database on their catch (consumed, sold or rejected ...) and size of fish caught. Status: The project faces a technical problem due to lack of regulation text on this fishery thus producing a delay of the implementation.
Responsible management of tuna resources and assimilated passing in waters of Madagascar	Starting on 2013	Madagascar	Undefined	AMPA	Establish development plan of the fleet according to available statistics	Synthesize all available data catch by gear and species, effort, length frequency or weight, ... to produce in this case the harvesting capacity of the tuna resources passing in the fishing zone of Madagascar

8. IMPLEMENTATION OF SCIENTIFIC COMMITTEE RECOMMENDATIONS AND RESOLUTIONS OF THE IOTC RELEVANT TO THE SC

Table 8 : Respond with progress made to recommendations of the SC and specific Resolutions relevant to the work of the Scientific Committee

Res. No.	Resolution	Scientific requirement	CPC progress
05/05	Concerning the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 1–12	With the recent development of the Malagasy longline fleet operating in the oriental facade of the waters of Madagascar, the large island is urged to develop a national conservation plan to reduce the impacts of the fishery for sharks. For the moment, no initiative palpable corresponding to this requirement has not been reported. In contrast, the observer program and unannounced inspection are being implemented. In addition, the voluntary initiative fishermen to use "circle hooks" is already contributing to this goal. Still, that investigations should be conducted to highlight the rate of released sharks.
10/02	Mandatory statistical requirements for IOTC members and cooperating non contracting parties	Paragraphs 1–7	Devices begin to put in place to cover the statistics related to the new Malagasy longline fleet including those related to fishing activities and those inherent in the biology and the environment. The logbook model corresponding to the characteristics of the fishery has already been designed and operated. From next year (2013), units of said data collection will be developed. Regarding the implementation of the collection of statistics on the artisanal fishery targeting or accidentally catching tuna and similar species, the Malagasy fisheries administration is seeking partnership with OFCF of Japan and WWF.
10/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	The rate of interaction with national longline and seabirds (Albatross) is minimal. In this regard, we believe that the development of a national action plan specifically to reduce bycatch of seabirds is not a priority.
11/04	On a regional observer scheme	Paragraph 9	08 Malagasy scientific observers were trained whose, 03 by the IOC and 05 by SWIOFP. Note that this program is in force since 2011.
12/03	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–9	Similaire à la résolution 10/02
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	Aucune progression significative n'a été notée
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC	Paragraphs 4–8	Similar to resolution 05/05

Res. No.	Resolution	Scientific requirement	CPC progress
	area of competence		

LITERATURES

- Décret n° 94-112 du 13 février 1994 ;
- Database CSP 2011 ;
- Rapport annuel MPRH 2011.